

**REMARKS**

Claims 1-28 remain in this application.

New claims 28 has been added. No new matter is added.

**Claim Rejections**

The present Action asserts that claim 10 lacks sufficient antecedent basis for the limitation “the robotic microscope” and “suggests that claim 10 is made to depend from claim 9.” Applicants have amended claim 10 to depend from claim 9, and respectfully submit that this claim is in immediate condition for allowance.

The present Action states that claims 14-20 “are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Program code cannot directly be claimed; the code must be stored on a computer readable medium to avoid being non-statutory subject matter.” Applicants have amended claims 14-20 to recite a computer readable medium coded with machine-executable instructions for causing a data processing apparatus to perform a method, and respectfully submit that these claims are in immediate condition for allowance.

In the present Action, claims 1, 4-14, 17-24, 26 and 27 have been rejected as obvious over U.S. Pat. No. 6,711,283 to Soenksen (“Soenksen”) in view of U.S. Pat. No. 6,633,659 to Zhou (“Zhou”). Applicants respectfully disagree.

In independent claim 1, Applicants claim, among other things, locating a first group of disks from a plurality of disks included in a tissue microarray using one or more visual features of the first group of disks. The present Action suggests that this limitation is disclosed in Soenksen at column 20, lines, 57-61. (See Action at paragraph 9 (asserting this is a disclosure that “[n]ormal and abnormal cells are two different possible groupings for the disks. These cells are identified by using one or more visual features.”) Applicants respectfully disagree. The cited portion of Soenksen states:

In step 214, the analysis of the image 76 that represents a digitized portion of the sample 12, comprises a variety of methods such as the application of morphological algorithms to identify and locate specific types of objects in the image 76, for example, normal or abnormal cells.

Soenksen thus discusses locating objects including normal or abnormal cells within an image representing a digitized portion of a sample. This is not a disclosure or suggestion of locating a group of disks from a plurality of disks included in a tissue microarray using one or more visual features of the group of disks, as recited in Applicants’ claim 1.

The present Action also asserts that Soenksen teaches, at column 19, lines 12-15, “capturing an image of each one of the first group of disks and second group of disks at a second magnification, i.e., higher resolution.” Applicants respectfully disagree. The cited portion of Soenksen states that “[t]he image 76 of the sample 12 can thus be used cost-effectively as the basis for a subsequently higher resolution interrogation of selected areas of the sample 12.” It does not disclose or suggest capturing an image of each one of the first group of disks, or capturing an image of each one of the second group of disks. (As discussed herein, the cited discussion in Soenksen (alone or in combination with Zhou) also does not disclose or suggest locating the claimed first group (discussed *supra*) or second group (discussed *infra*) of disks to begin with.)

The present Action does not assert that either of these limitations is taught or suggested by, or in light of, Zhou; instead, the present Action asserts that these limitations are to be found in Soenksen. (*See* Action at paragraph 9.) For at least these reasons, Applicant respectfully submits that this assertion is incorrect, and that the invention claimed in claim 1 is not taught or suggested by, and thus is not obvious over, Soenksen (either alone or in combination with Zhou).

In independent claim 1, Applicants also recite identifying a grid defined by the first group of disks. The present Action suggests that Soenksen contains a “similar” disclosure at column 17, lines 8-10, stating that “[c]alibration markings are used in the method, which are similar to grid lines.” Applicants respectfully disagree. The cited disclosure in Soenksen discusses ways to implement control logic in an automatic scanning process to determine whether the end of an image strip has been reached, and states that “[o]ther parameters such as total elapsed scan time or calibration markings that are part of, or positioned in close proximity to, the sample 18 could also be used” for this purpose. This is not a disclosure or suggestion of identifying a grid defined by the first group of disks that has been located from a plurality of disks using one or more visual features of the first group. Applicants respectfully submit that, for at least these additional reasons, Soenksen does not render obvious the invention claimed in claim 1.

The present Action further asserts that Soenksen discloses locating a second group of disks from the plurality of disks using the identified grid to locate disks which do not include the one or more visual features of the first group of disks. (*See* Action at paragraph 9.) The Action cites the same portion of Soenksen discussed above (column 20, lines 57-61), which discusses locating objects including normal or abnormal cells within an image representing a digitized portion of a sample. This discussion in Soenksen does not disclose or suggest locating a second group of disks from a plurality of disks included in a tissue microarray which do not include the one or more visual features of the first group of disks; nor does it disclose or suggest using an identified grid for this purpose. Thus, for at least these additional reasons, Soenksen does not render obvious the invention claimed in claim 1.

The present Action acknowledges, in paragraph 9, that Soenksen “does not disclose using gridlines in the fashion described in these claims, nor is information from the first group used to locate a second group.” The Action suggests, however, that three portions of Zhou – specifically, three paragraphs starting respectively at column 10, line 47, column 13, line 30, and column 14, line 15 – contain disclosures that, in combination with Soenksen, would render Applicants’ claimed invention obvious. (*See* Action at paragraph 10.) Applicants respectfully disagree and submit that these discussions in Zhou similarly fail to disclose or suggest the invention claimed in Applicants’ claim 1.

In claim 1, Applicants claim locating a first group of disks from a plurality of disks included in a tissue microarray using one or more visual features of the first group of disks, identifying a grid defined by the first group of disks, and locating a second group of disks from the plurality of disks using the identified grid to locate disks which do not include the one or more visual features of the first group of disks. Among other things, the cited discussions in Zhou do not disclose or suggest locating disks which do not include the one or more visual

features of the first group of disks; nor do they teach or suggest using an identified grid to do so. Rather, these discussions in Zhou involve analyzing fluorescent intensities throughout a region of an image of a gene expression microarray in an effort to detect sub-grids – a process termed “automatic sub-grid detection.” (See Zhou at paragraphs beginning at col. 10, line 47 (discussing step “to determine the general location of the sub-grids in a microarray”), col. 13, line 30 (discussing later step of “determining the probable sub-grid in each partitioned sub-region”), and col. 14, line 16 (discussing later step “to constrain or ‘bind’ any free sub-grids” so as “to aid in fixing the locations of other probable sub-grids whose exact positions in their respective sub-grid regions remain uncertain”).) At least because these discussions do not disclose or suggest locating disks which do not include the one or more visual features of the first group of disks, or using an identified grid to do so, they do not teach or suggest, alone or in combination with Soenksen, the limitations of claim 1. Further, Applicants respectfully submit that one of ordinary skill in the art would have no motivation to combine these references to make the claimed invention, and that the present rejection is an improper attempt to reconstruct through hindsight Applicant’s invention. For at least these additional reasons, Zhou, either alone or in combination with Soenksen, does not render obvious the invention claimed in claim 1.

Because claim 1 is patentable, for at least this reason claims 2-13 and 28, which contain additional limitations and depend (directly or indirectly) from claim 1, are also patentable, and Applicants respectfully submit that the rejections of claims 2-13 in the present Action are in error.

The present Action asserts that claim 14 is rejected for the same reasons as those used to reject claim 1. Applicants respectfully submit that claim 14 is not rendered obvious by Soenksen and Zhou (alone or in combination) for the same reasons discussed above.

Because claim 14 is patentable, for at least this reason claims 15-20, which contain additional limitations and depend (directly or indirectly) from claim 14, are also patentable, and Applicants respectfully submit that the rejections of those claims in the present Action are in error.

Applicants respectfully submit that the arguments provided above in connection with claim 1 also address the present Action's rejection of claim 21, and that for at least the reasons set forth in connection with claim 1, Soenksen and Zhou, either alone or in combination, do not render obvious the invention claimed in claim 21.

In the present Action, claim 22 is rejected in part for the same reasons set forth in connection with claim 1. (*See* Action at paragraph 30 ("The rest of this claim has been dealt with in claims 1 and 4. Please see these claims for reasons of rejection.")) Among other things, claim 22 recites a computer configured to locate a second group of disks on the tissue microarray within the image of the tissue microarray using the coordinates of a grid obtained from the first group of disks. Apart from the above-noted reference to the present Action's discussion of claim 1, the Action contains no assertion that this limitation is disclosed or suggested by Soenksen or Zhou, either alone or in combination. For the reasons set forth in connection with claim 1, Soenksen and Zhou, either alone or in combination, do not teach or suggest this limitation. Applicants respectfully submit that, for at least these reasons, claim 14 is not rendered obvious by Soenksen and Zhou, either alone or in combination.

Because claim 22 is patentable, for at least this claims 23-27, which contain additional limitations and depend (directly or indirectly) from claim 22, are also patentable, and Applicants respectfully submit that the rejections of those claims in the present Action are in error.

Applicants believe pending claims 1-28 are in immediate condition for allowance. If any issues remain, Applicants invite a telephone call and/or Examiner Interview to the below signed attorney to discuss such remaining issues.

**CONCLUSION**

In view of the above amendment, applicant believes the pending application is in condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Applicant believes no further fees other than those transmitted herewith are due with this response. However, if any further fees are due, please charge our Deposit Account No. 18-1945, under Order No. UMNJ-P01-001 from which the undersigned is authorized to draw.

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Respectfully submitted,

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